



NOTES ADENOVIRIDAE

ADENOVIRUS

osms.it/adenovirus

PATHOLOGY & CAUSES

- Seven subgroups, 52 serotypes
- Directly invades human epithelial cells (several organs) → multiple cytopathic effects, usually within 2–7 days post-infection
- Responsible for variety of upper, lower respiratory tract; gastrointestinal; genitourinary infections
- Common clinical syndromes
 - Upper respiratory disease, pharyngoconjunctival fever, coryza, **pneumonia**, gastroenteritis, hepatitis, hemorrhagic cystitis, interstitial nephritis, epidemic keratoconjunctivitis

Genetic material

- Double-stranded DNA virus

Taxonomy

- Adenoviridae family

Morphology

- **Non-enveloped** icosahedral nucleocapsid
- Unique
 - Fiber-like projections (hemagglutinins) protrude from capsid's 12 vertices

Transmission

- Aerosol droplets
- Fecal-oral route
- Neonates
 - Infected cervical secretion exposure
- Solid organ transplant

- Fomite contact
 - Survives on environmental surfaces for long periods; inactivated by heat, formaldehyde, bleach

RISK FACTORS

- Close living space (e.g. military barracks, daycare centers)
- Summer camps (especially with swimming pools/lakes)
- Healthcare facilities
- Immunocompromised status (especially cell-mediated immunity deficiency)

COMPLICATIONS

- Secondary bacterial infection; meningoencephalitis; **myocarditis**; disseminated intravascular coagulation; myositis, rhabdomyolysis; hypogammaglobulinemia
- Disseminated adenovirus infection
 - Affects multiple organs, immunocompromised individuals especially; high mortality rate

SIGNS & SYMPTOMS

- Varies with clinical syndrome
- Upper respiratory
 - **Sore throat**, nasal congestion, rhinorrhea, dry cough, hoarseness, inflamed tonsils, cervical lymphadenopathy; wheezes/rhonchi on auscultation

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- Ocular
 - Conjunctivitis, preauricular, lymphadenopathy
- Gastrointestinal
 - Nausea, vomiting, diarrhea
- Systemic
 - Fever, malaise, headache, myalgia

DIAGNOSIS

- History, physical examination
 - Characteristic findings
 - Diagnostic test choice based on clinical presentation

DIAGNOSTIC IMAGING

Chest X-ray

- May show diffuse bilateral pulmonary mononuclear cell infiltration, hyaline membranes, necrosis

LAB RESULTS

Microbe identification

- Viral culture (e.g. nasopharyngeal swabs, blood, urine, sputum)
- Viral assay (e.g. adenovirus-specific enzyme immunoassay (EIA)/immunofluorescence assay)
- Nucleotide amplification test (NAT)
- Polymerase chain reaction (PCR)

Serology

- Antigen/complement fixation assays
- Hemagglutination inhibition/neutralizing antibodies
- Restriction endonuclease (RE) analysis

Tissue biopsy

- Eosinophilic inclusions (early stage)
- Basophilic inclusion surrounded by clear intranuclear inclusion

Electron microscopy

- Icosahedral virions forming intranuclear paracrystalline aggregates

TREATMENT

- Usually self-limiting disease

MEDICATIONS

Pharmacotherapy

- Immunocompromised/severe infection individuals
 - Antivirals, immunoglobulin (IVIG)

Prevention

- Infection control measures
- Live oral enteric-coated vaccine used for military recruits only